

CONTAGIOUS COMMENTS

Department of Epidemiology

Post-Exposure Prophylaxis (PEP) & Follow-up for Community Exposure to Blood & Body Fluids

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- Call the **Kempe Child Protection Team** for all Pediatric Sexual Assault Victims **(303-861-6919)**.
- Call The Children's Hospital Pediatric ID Team for other Non-Occupational Blood and Body Fluid Exposures Considering Post-exposure HIV Prophylaxis **(303-861-6981)**.

BASELINE TESTING

Testing of SOURCE of blood / body fluid exposure:

- Test for Hepatitis B surface antigen, Hepatitis C antibody, and HIV antibody by rapid immunoassay.
- Testing for other sexually-transmitted diseases if sexual assault.
- HIV RNA PCR if high-risk source (possible early infection prior to seroconversion).
- If testing of source is negative, further prophylaxis and follow up testing is not required.
- Needles and syringes found in the community should not be tested for virus.

Baseline Testing for VICTIM:

- Hepatitis B surface antigen and surface antibody, Hepatitis C antibody, HIV antibody, blood in a red top tube for "Doctor Freeze and Save - Serum."
- If starting antiretroviral drugs: CBC, LFT's, amylase, B-HCG (if age appropriate).
- Add for sexual exposure: *Chlamydia trachomatis*, *Neisseria gonorrhoeae*, *syphilis*: Baseline testing per Child Protection Team protocol.

PROPHYLAXIS

Hepatitis B:

Assess vaccination status:

- If fully immunized and known responder (HBsAb more than 10mUnit/mL) then no HBIG or vaccine.
- If fully immunized with a series of three vaccines and titer unknown, obtain HBsAb and await result. If titer less than 10mUnit/mL, administer HBIG and a dose of Hepatitis vaccine. If titer not available within 7 days, administer HBIG and a dose of Hepatitis B vaccine. Recheck HBsAb titer in 6 months. If low, administer two more doses of Hepatitis B vaccine.
- If immunized with a series of three vaccines and known non-responder, administer HBIG at baseline and begin reimmunization with three doses Hepatitis vaccine.
- If immunized with two series of three vaccines each (total six doses) and known non-responder, administer HBIG at baseline and at 1 month after exposure.

- If not immunized with at least three doses, administer HBIG and initiate Hepatitis B vaccine series at baseline visit.
- HBIG dose = 0.06mL/kg intramuscular.

Hepatitis C:

No prophylaxis recommended.

HIV Post-exposure Prophylaxis (PEP):

- Decision to start PEP depends on level of risk and desire of patient / family after thorough discussion of risks and benefits.
- Comprehensive reviews for reference / discussion of risks and benefits of antiretroviral therapy (ART): *Havens, PL and the AAP Committee on Pediatric AIDS. Post-exposure prophylaxis in children and adolescents for non-occupational exposure to HIV. Pediatrics 2003;111(6):1475-89. DHHS. Antiretroviral post exposure prophylaxis after sexual, injection-drug use or other nonoccupational exposure to HIV in the United States. MMWR 2005, vol 54.*
- Efficacy of PEP depends on time since exposure and type of exposure. In health care workers with needle stick injury PEP decreased transmission by 80%.
- Information to help assess risk of transmission:
 - Seroprevalance of HIV in Colorado:
 - IDU (1993) = 3% HIV positive.
 - IDU in treatment (1997) = 0% (0 of 400 tested).
 - IDU out of treatment (1998) = 6.5% (10 of 155).
 - Sexual assailants (1998-99) = 1.7% (6 of 361).
 - Sexual assailants (2004) = 0.6-0.7% (2 of 300-325).
 - Risk is of transmission from a known HIV positive source: Needle stick = 0.3%, needle sharing IVDA = 0.7%; traumatic receptive vaginal or atraumatic receptive anal 0.5-3.2%. HIV transmission has never been reported from discarded needles in a public setting (excluding healthcare institutions); in a study of HIV positive needles held at room temperature, 8% had virus at 21 days; at higher temperatures less than 1% had virus. Bite transmission has been rarely reported. Although risk of HIV transmission following community exposures appears to be generally low, some experts recommend PEP following exposures to syringes / needles and bites with bleeding / skin break.

Different thresholds recommended by experts include:

- Needle had visible blood and known to be used by HIV positive person.
 - Needle had visible blood.
 - All needle sticks.
- Information to help assess disadvantages to using PEP:
 - Side effects include: gastrointestinal distress (nausea, abdominal pain, diarrhea), headache, fatigue, insomnia, rash, pancreatitis (rare), anemia (rare). Side effects are usually reversible. See by class below. Severe and/or irreversible side effects (lactic acidosis, severe hepatic steatosis) can occur, but are rare.
 - Incidence of GI side effects in PEP studies is 75%. About 15% either stop PEP or need their medications modified due to these side effects.
 - If Decision is made to Start PEP:
 - Ideally should start medications within 2 hours of exposure, but would still offer prophylaxis up to 72 hours after exposure if source HIV status is unknown and up to 2 weeks post-exposure if source known HIV positive.
 - **FILL PRESCRIPTIONS FOR FIRST 5 to 7 DAYS AND GIVE FIRST DOSE PRIOR TO DISCHARGE AS PEP SHOULD BE STARTED WITHOUT DELAY.** Five to 7 days given to assure no side effects prior to filling all four weeks. PEP is expensive (28 days for adult = \$1,260). Call TCH pharmacy and ask to speak with supervisor if help obtaining medication is needed; TCH will supply up to 72 hours worth until patient can get financial counseling to be rated for hospital charity or Medicaid.
 - Make sure patient is not on other drugs that are incompatible with antiretroviral drugs prescribed.
 - FOLLOW UP with PCP within 1 week of exposure to assess tolerance of medications. If PCP requests, patient may follow up with Infectious Diseases in Tuesday afternoon clinic (to be seen either by clinic team or by A team).

Pediatric ID recommended three-drug regimen*:

Zidovudine (Retrovir, ZDV, AZT) plus lamivudine (Epivir, 3TC) plus lopinavir / ritonavir (Kaletra, LPV/R). If adolescent or adult over 38kg and 1.25M², may give Combivir (ZDV plus 3TC in single pill) plus lopinavir / ritonavir. Duration of treatment is 4 weeks, but prescribe only 1 week initially to assure tolerance. M² formula is: take the weight (kg) x height (cm), divide by 3600; then take the square root of this number.

**These recommendations differ from those of the CDC and AAP, and are based on the philosophy and expertise of the pediatric HIV doctors at University of Colorado Health Sciences Center. Under some circumstances (cost, drug interactions) it may be appropriate to use two drugs per CDC regimen (AZT/3TC) instead of three; consult with TCH Pediatric ID or consider calling CDC sponsored national HIV/AIDS Clinician's Consultation Center PEP line at 1-888-448-4911.*

- **Zidovudine** (NRTI; ZDV, AZT, Retrovir): available as 10mg/ml solution, 100mg capsule, 300mg tablet:
 - **Adult dose:** 300mg by mouth twice daily or 180-240mg/M²/dose twice daily.
 - **Pediatric dose:** 180-360mg/M²/dose twice daily.
 - **Major side effects:** bone marrow suppression (anemia, neutropenia), GI intolerance, headache, insomnia, asthenia, myopathy.
 - **Serious side effects:** lactic acidosis, severe hepatic steatosis (very rare).
- **Lamivudine** (NRTI; 3TC, Epivir): available in 10mg/ml solution, 150mg tablet (tablet can be cut):
 - **Adult dose:** 150mg by mouth twice daily (if more than 50kg) or 2mg/kg/dose by mouth twice daily (if less than 50kg adult).
 - **Pediatric dose:** 4mg/kg/dose by mouth twice daily not to exceed 150mg by mouth twice daily.
 - **Major side effects:** minimal toxicity.
 - **Serious side effects:** lactic acidosis, severe hepatic steatosis (very rare).
- **Lopinavir / ritonavir** (PI; Kaletra): (133.3mg LPV/33.3mg RTV per capsule, 80mg LPV/20mg RTV per 1ml):
 - **Adult dose:** 400mg LPV/100mg RTV/dose by mouth twice daily (3 capsules by mouth twice daily).
 - **Pediatric dose:** weight 7-15 kg: 12mg/kg/dose twice daily; weight 15-40kg: 10mg/kg/dose twice daily.
 - **Meal before decreases GI side effects.**
 - **Major side effects:** diarrhea, nausea, vomiting, asthenia, elevated LFTs, hyperglycemia, lipid abnormalities, pancreatitis.

If patient with ZDV intolerance, may substitute stavudine (d4T): available as 1mg/ml solution, 15, 20, 30, 40 mg capsules:

- **Adult dose:** 30-60kg: 30mg by mouth twice daily; more than 60kg, 40mg by mouth twice daily.
- **Pediatric dose:** 1mg/kg/dose twice daily.

If diarrhea, may use Lomotil.

- **Tetanus (for needle stick):**
 - Determine tetanus immunization status.
 - Consider wound to be tetanus-prone.
 - If last vaccination more than 5 years prior, administer tetanus vaccine.
 - If incomplete (less than 3 doses), or unknown vaccination, administer Tetanus immune globulin as well as vaccine.
 - See Red Book recommendations for further details.
- **Other STD prophylaxis: for cases of sexual assault consult with The Kempe Child Protection Team regarding indications for testing and treatment :**
 - **Neisseria gonorrhoeae:**
 - Weight more than 45kg (100 lbs): Ceftriaxone 125mg IM, Ciprofloxacin 500mg by mouth or Ofloxacin 400mg by mouth (all 1 dose).

- Weight less than 45kg (100 lbs): Ceftriaxone 125mg IM x 1, Cefixime 8mg/kg x 1.
- **Chlamydia trachomatis:**
 - Weight more than 45kg (100 lbs): Azithromycin 1 gram by mouth or doxycycline 100mg by mouth twice daily x 7 days.
 - Weight less than 45kg (100 lbs): Azithromycin 20mg/kg x 1 dose (max 1 gram).
- **Trichomonas:** can consider bacterial vaginosis prophylaxis:
 - Weight more than 45kg (100 lbs): Metronidazole 2 grams by mouth x 1 dose.
 - Weight less than 45kg (100 lbs): Metronidazole 15mg/kg/day divided three times daily x 7 days.
- **Pregnancy:** consider pregnancy prophylaxis on case-by-case basis, per the Kempe Child Protection Team recommendations:

Dose: Plan B (one pill=0.75mg levonorgestrel). Must be started within 72 hours of assault. Dose is one pill at time of presentation and one pill 12 hours later. (Cost is about \$22).

FOLLOW-UP

Within one week if taking antiretroviral drugs, preferably within 2-3 days:

Follow up with PCP, the Kempe Child Protection Team or Pediatric ID (call ID fellow) depending on patient / provider comfort level to provide counseling, discussion / treatment of side effects, and ensure adequate supply of medication.

2 weeks if taking antiretroviral drugs:

If baseline CBC, LFT's, or amylase abnormal or underlying medical conditions, repeat tests.

4 weeks:

- If taking antiretroviral drugs, discontinue them.
- If unimmunized prior to exposure, hepatitis B vaccine # 3.

6 weeks:

- HIV antibody.
- Repeat RPR if indicated.

3 months:

- HIV antibody.
- Repeat RPR if indicated.

6 months:

- HIV antibody.
- Repeat RPR if indicated.
- Hepatitis C antibody.
- Hepatitis B:
 - If Hepatitis B surface antibody at baseline more than 10mUnit/mL, no further testing.

- If Hepatitis B surface antibody at baseline unknown or less than 10mUnit/mL, obtain Hepatitis B surface antigen and Hepatitis B surface antibody. If Hepatitis B surface antigen is negative and repeat Hepatitis B surface antibody less than 10mUnit/mL, see Red Book for recommendations to determine whether additional vaccination is indicated.
- If unimmunized prior to exposure, hepatitis B vaccine # 3.

12 months:

If source known or suspected HIV positive and patient received prophylaxis, consider repeat HIV Ab (prophylaxis may prolong time to antibody response).





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